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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/576,680

04/21/2006

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1444 7590 11/19/2009
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EXAMINER

GIARDINO JR, MARK A

ART UNIT

PAPER NUMBER

2185

MAIL DATE

DELIVERY MODE

11/19/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/576,680	Applicant(s) KUHNE, REINHARD	
	Examiner MARK A. GIARDINO JR	Art Unit 2185	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 July 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,6-9 and 11-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,6-9 and 11-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

The Examiner acknowledges the applicant's submission of the amendment dated 7/31/2009. At this point, claims 1, 2, 7, 12, and 13 have been amended and claim 18 have been cancelled. Thus, claims 1, 2, 6-9, and 11-13 are pending in the instant application.

The instant application having Application No. 10/576,680 has a total of 9 claims pending in the application, there is 1 independent claims and 8 dependent claims, all of which are ready for examination by the examiner.

CLAIM OBJECTIONS

Claim 12 is objected to because of the following informalities: the limitation "the valid from the previous alternative block" is unclear, but has been examined as "the valid sectors from the previous alternative block". Appropriate correction is required.

REJECTIONS NOT BASED ON PRIOR ART

Claim Rejections - 35 USC ' 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 13 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 13 recites the limitation "the previous memory". There is insufficient antecedent basis for this limitation in the claim, as it is unclear if "the previous memory" refers to the memory block, or the alternative block, which is described as "the previous alternative block" in claim 12.

REJECTIONS BASED ON PRIOR ART

Claim Rejections - 35 USC ' 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. ' 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 6, and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Conley (US 2002/0099904).

Regarding Claim 1, Conley teaches a method for writing memory sectors in individually-deletable memory blocks **(the blocks are "individually erasable", Paragraph 0004)** comprising a number of physical memory sectors **(each block is "further partitioned into individually addressable pages that are the basic unit for reading and programming user data", where the page is analogous to a sector, end of Paragraph 0004)**, whereby access to the physical memory sectors is achieved by means of an allocation table for address conversion of a logical address into a physical block address and a physical sector address **(see the table of Figure 12 with**

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logical block addresses and corresponding physical pages, and also description of this Figure on Paragraph 0023), the method comprising:

writing sectors to an alternative memory block by means of an altered address conversion for the corresponding physical block address when a sector write command is to be carried out to an already written sector **(see Figures 7 and 8, where new data is written to the alternative memory block PBN1, and this is done via means of an altered address conversion of PBN0 to PBN1, and the two blocks clearly do not have the same physical address, since they are different physical blocks, and the write is to an already written sector, as the new pages are for replacing already-written pages of the old block PBN0, Paragraph 0053), wherein the step of writing sectors is carried out one by one to adjacent sector positions of the alternative memory block (see Figure 8 and how it progresses to Figure 11, where the pages are written sequentially to adjacent sectors of alternative memory block PBN1, also see description of Figure 11 on Paragraph 0058),**

storing the sector positions of the written sectors in the alternative block into a sector table **(sector table in Figure 12), which is organized as a search table, where each table entry indicates a physical sector address of a written sector (PBN1 column of Figure 12, indicating which block the physical address is in) with a corresponding valid sector position in the alternative block (the sector [page] position indicated in the 'page' column adjacent to PBN1 in Figure 12), and**

using the physical sector address for searching the sector table to find positions of valid sectors in the alternative block **(the table of Figure 12 shows the physical**

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sector address listed in the 'page' column adjacent to PBN0 is in the same row as the position of valid sectors in the alternative block [PBN1], and is thus used to find the valid sectors of where the data is written to, also see description on Paragraph 0060).

Regarding Claim 2, Conley teaches all limitations of Claim 1, wherein the altered address conversion is carried out by means of a data record with a physical block address and the sector table (see Figure 12, which contains a record of the data) with a physical block address and a sector table (indicated by a 'page') in an internal storage medium of a memory controller (note how the updated data blocks are stored in the memory subsystem, which inherently has some sort of controller, "the subsystem controller...performs a number of functions including the translation between logical addresses received by the memory subsystem from a host, and physical block numbers and page addresses within the memory cell array", Paragraph 0005).

Regarding Claim 6, Conley teaches all limitations of Claim 1, wherein the search table is sorted by physical sector addresses (the table of Figure 12 is clearly sorted by physical sector address, as the physical sectors indicated by the middle 'page' column is sequential).

Regarding Claim 7, Conley teaches all limitations of Claim 1, wherein the position of the sector within the alternative block is also stored in an administrative part of the sector (see Figure 10, and the 'overhead' section [where the overhead section corresponds to the administrative part] that contains a "page offset overhead data field 41 written into the pages of PBN1 that contain the updated data", Paragraph 0041).

Claim Rejections - 35 USC ' 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 8, 9, 12, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Conley in view of Estakhri (US 5,930,815).

Regarding Claim 8, Conley teaches all limitations of Claim 7 as discussed above. However, Conley does not explicitly teach the sector table reconstructed from the sector positions stored in the administrative part when the memory system is restarted.

Estakhri teaches wherein the sector table of a block is reconstructed from the sector positions stored in the administrative part when the memory system is restarted (table 714 which contains the sector tables of the blocks is stored in RAM, see Column 11 Lines 36-47, and this RAM is continually shadowed and restored on power up, see Column 10 Line 66 to Column 11 Line 15).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to which the subject matter pertains to have shadowed and

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restored the sector tables (as in Estakhri) in the method of Conley because doing so ensures that important data is not lost during a power outage.

Regarding Claim 9, Conley and Estakhri teaches all limitations of Claim 8, wherein when restarting, the sector positions are registered in the sector table (table 714 which includes the sector positions in the sector table is stored in RAM, see Column 11 Lines 36-47, and this RAM is continually shadowed and restored on power up, see Column 10 Line 66 to Column 11 Line 15 in Estakhri).

Regarding Claim 12, Conley teaches all limitations of Claim 1 as discussed above. However, Conley does not explicitly teach searching for a new alternative block once the sector table is filled.

Estakhri teaches wherein, as soon as the sector table is filled (according to a user defined threshold, Column 17 Lines 39-41 in Estakhri), a new alternative block is searched for, to which valid sectors from the original memory block, together with the valid sectors from the previous alternative block, are then copied (Column 17 Lines 42-49 in Estakhri).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to which the subject matter pertains to have implemented the searching for an alternative block (as in Estakhri) once the sector table (of Conley's method) was filled because the benefits of the fast writing without erasing a block can be maintained even after the sector table becomes full.

Regarding Claim 13, Estakhri and Conley teach all limitations of Claim 12, wherein the new alternative block is registered in the allocation table as the memory

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block and the previous memory and alternative blocks are cleared for deletion (Column 17 Lines 52-54).

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Conley in view of Asnaashari (US 5,928,370).

Regarding Claims 11, Conley meets all limitations of Claim 1 as discussed above. However, Conley does not teach a memory block containing 256 sectors or index and search tables having 32 bytes. Asnaashari teaches a flash device that contains a sector size of 256 bytes (Column 3 Lines 14-21 in Asnaashari). Since Conley teaches one bit per sector in his index and search table, the size of each table for such a sector size is 256 bits, or 32 bytes. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have used a sector size of 256 bytes (as in Asnaashari) in the sector table of Conley. As motivation, Conley teaches 512 bytes, but states that other sizes may be used (Paragraph 0004), and since 256 was a well known sector size in the art, one of ordinary skill would have found it obvious to use such a sector size. Also, limitations relating to size are not sufficient to distinguish over prior art, see MPEP 2144.04 (IV) A.

ARGUMENTS CONCERNING NON-PRIOR ART REJECTIONS/OBJECTIONS

Rejections - USC 112

Applicant's arguments/amendments with respect to claims 1, 2, 6-9, 11, and 12 have been considered and have overcome the Examiner's prior rejections and thus are withdrawn. However, Claim 13 remains rejected as described above.

ARGUMENTS CONCERNING PRIOR ART REJECTIONS

Rejections - USC 102/103

Applicant's argument with respect to claim 1 that Conley does not teach "writing sectors to an alternative memory block by means of an altered address conversion for the corresponding physical block address when a sector write command is to be carried out to an already written sector" has been considered but is not persuasive. How the 'altered address conversion' differs from the conversion of Conley (such as the conversion of PBN0 to PBN1 when overwriting data in PBN0 described in Paragraph 0053 in Conley) is not made clear in the claims. Applicant states on Page 6 of the arguments that "only the physical block address is altered", but it is unclear how this differs from altering the physical block address of PBN0 to the physical block address of PBN1 in Conley. Further, the claim never explicitly states "only the physical block address is altered", only that the altered address conversion is "for the corresponding physical block address". Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Applicant's arguments that the "sector table as a search table contains only entries for the physical sector addresses and the corresponding positions of modified sectors in the alternate block" and "the address translation table for the block addresses and the sector table for the valid sectors in the alternate blocks are different tables" have been considered, but is not recited in the rejected claims. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Applicant's argument that the table of Conley is an "index table" and not a search table has been considered but is not persuasive. The table of Figure 12 in Conley is at least nominally searched to find the correct data, since when data from the modified pages must be read, the modified data is read (abstract of Conley). Thus, the table of Conley satisfies the limitation of a "search table" in claim 1.

CLOSING COMMENTS

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

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extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

STATUS OF CLAIMS IN THE APPLICATION

The following is a summary of the treatment and status of all claims in the application as recommended by **M.P.E.P. ' 707.07(i)**:

CLAIMS REJECTED IN THE APPLICATION

Per the instant office action, claims 1, 2, 6-9, and 11-13 have received a third action on the merits and are subject of a third action final.

DIRECTION OF FUTURE CORRESPONDENCES

Any inquiry concerning this communication or earlier communications from the examiner should be directed to M. Anthony Giardino whose telephone number is (571) 270-3565 and can normally be reached on Monday - Thursday 7:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Sanjiv Shah can be reached on (571) 272 - 4098. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

M.A. Giardino

/Stephen Elmore/
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/M.G./

Patent Examiner
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November 19, 2009